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Identification of Crustacea Class Arthropoda in The Legend Pamekasan Coastal

Soni Iwandani, Lukluk Ibana, Linda Tri Antika
Bologi Education Department, Madura Islamic University, Madura, Indonesia
*Corresponding Author: soniiwand@gmail.com

Abstract: Identification of the Arthropod class of crustaceans is essential to develop strategies for the management and preservation of arthropods in the future because, until now, there has been no data collection on what types of Arthropod class of crustaceans exist in the coastal area of The Legend Pamekasan. This study aims to record the species of arthropod class of crustaceans that exist in the legend beach. Data on arthropod species in the crustacean class were collected using exploratory, descriptive methods. The results of this study indicate that the arthropod class of crustaceans found in the coastal area of The Legend Padelegan Village, Pademawu District, Pamekasan Regency, totalled eight species which were reduced to 4 families. Most of the Arthropod species in the Crutasea class are dominated by the Ocypodidae family, which consists of 3 species. Then from the Sesarmidae and Panopeidae families, which are both number 2 species. In addition, Arthropod species from the Varunidae family were also found, namely one species.

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INTRODUCTION

Indonesia is one of the largest archipelagic countries in the world, with many islands. Astronomically, Indonesia is located at latitudes 6-N, 11-S and 0-E, but geographically it is located between the continents of Asia and the continents of Australia and the Indian and Pacific Oceans (Santoso, 2015). Indonesia saves natural and biological resources that are quite large both on land and at sea. Indonesian seas have one of the world's highest and highest levels of biodiversity. Indonesia's coasts and seas play an important role in the ecosystem because of its natural resource potential and high diversity. The coast describes the meeting area of the marine and terrestrial environments, which are still influenced by the characteristics of the sea and natural processes on land (Milatiya, 2020).

The coast is an area directly adjacent to the sea, has an important role and has the highest value among ecosystems on earth in providing services for environmental balance (Suryanti et al., 2019). Coastal areas are also very vulnerable to environmental pressures from the sea and land (Prayogi et al., 2021). Organisms found on the coast, namely Arthropods. Often found in marine biota that live in association with others, one of which is Crustacea. Crustacea is a subphylum of which most live in water areas, including lobsters, shrimp, and crabs. Arthropods are also the largest animal species in the world and a group of animals that have joints or joints. Arthropods are distinguished from each other by the number of limbs, locomotors and the type of respiratory apparatus. Based on the number of animals, arthropods are the most dominant among other animal groups (Nurhadi, 2011).

The diversity of a species in an area or region is very different. Abundant food sources will become a place to live and find food for various species, one of which is arthropods, so the abundance of species diversity is higher than in areas with fewer food

sources. Seasons and climate also cause differences in species diversity in an area. Madura in Pamekasan district has two seasons, namely rainy and dry. This also affects differences in species diversity. Usually, during the rainy season on the beach, the legend Pamekasan for the food diversity of arthropods will be more than during the dry season (Suhardjono, 2005). This study aims to describe the types of crustaceans in the Pamekasan coastal legend area.

RESEARCH METHOD

This research is a descriptive exploratory (Swedberg, 2020) by making direct observations in the field to observe aspects included in the scope of research to describe empirical conditions at present accurately. Descriptive research can be explorative so that researchers can describe conditions at a certain time as the basis for making a decision (Umar, 2011). The tools used in this study were wood to move the rocks inside the station. The materials used in this study were pens, books and pencils as writing tools, plinths as book covers, cameras for taking pictures, and identification books for Crustacea Books (Carpenter, 2002; Pratiwi, 2002).

Sampling was conducted on the coast of The Legend, Padelengan Village, Pademawu District, Pamekasan Regency, in February 2023. This research began by determining the sampling station using the Purposive Sampling method. Followed by sampling at the research location. The samples were then crab types, and the morphological characteristics of the shells and claws were noted. At the same time, take pictures of each part of the crab's body and pictures of the crab as a whole. Identification was carried out by comparing the observed sample with the combination in the Arthropod identification book. Besides that, sample identification also uses the Google Lens application. Then the collected data were analyzed descriptively, tabulated and presented as tables and figures.

Figure 1. Location Map of the Mangrove Ecotourism Area

RESULT AND DISCUSSION

The results showed that the arthropods found in the coastal area of The Legend, Padelegan Village, Pademawu District, Pamekasan Regency totalled eight species grouped into four families. These species can be seen in Table 1.

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Table 1. Types of arthropods on the coast of The Legend

No	Famili	Spesies	Susbstrat
1.	Varunidae	*Austrohelice crassa*	Lumpur berpasir
2.	Ocypodidae	*Austruca perplexa*	Pasir
3.	Ocypodidae	*Tubuca dussumieri*	Lumpur
4.	Sesarmidae	*Parasesarma bidens*	Lumpur berpasir
5.	Panopeidae	*Genus panopeus*	Lumpur
6.	Sesarmidae	*Parasesarma bidens*	Lumpur berpasir
7.	Panopeidae	*Rhithropanopeus harrisii*	Air payau
8.	Ocypodidae	*Genus Gelasimus*	Lumpur

Table 1 shows that most Arthropod species in the crustacean class are dominated by the Ocypodidae family, which consists of 3 species. Then from the Panopeidae family, totalling two species. In addition, one species of mangrove species from the families Varunidae, Sesarmidae, and Sesarmidae were also found.

Description of mangrove species found

Austrohelice crassa

This species has a carapace in the shape of a square, notched in two with a slight concavity. The carapace's surface has a clear and rough area; there are scattered short setae, the gastric region is clearly visible, and the branchial region has a clear, prominent line. The anterolateral angle is sharp; the epibranchial teeth are small, tapered and pointed forward, forming a U-shaped gap between the anterolateral angle and the epibranchial teeth bearing short setae along the edge of the carapace. The distribution of this species is generally found on Pawai Island, Bukom Island, Happy Island (Singapore), Penang (Malaysia) and is now found in Indonesian territory (Needham et al., 2010).

Figure 2. *Austrohelice crassa*, a) top of the crab; b) the bottom of the crab

Austruca perplexa

It is a member of the genus Austruca, with a broad carapace surface, with well-defined anterolateral margins; the outer corners of the orbits are not slanted and are black with white markings. Has a pair of pincers; in males, there are large claws (major cheliped) and small claws (minor cheliped); large claws in males do not have grooves on the outer surface of the ductules or the outer surface of the polex, the surface of the manus is not equipped with large nodules. In the centre of the polex there is one tooth that is quite large; the end of the polex is equipped with a subdistal tooth that is quite large. The ductules and

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polex of the large pincers are white. Has four pairs of legs with a yellowish-brown color. It is generally spread across the coasts of Indonesia, Thailand to China, Taiwan, Japan, the Philippines and eastern Australia (Murniati & Pratiwi 2015).

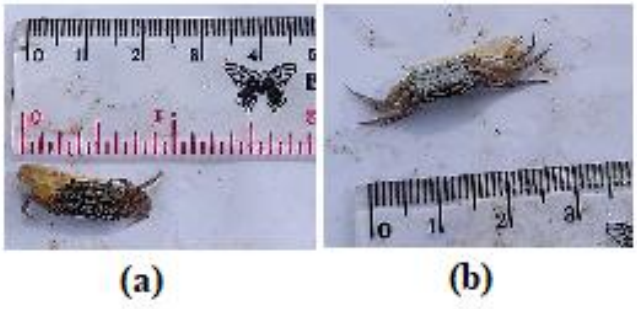

Figure 3. *Austruca perplexa*. a) the top of the crab; b) the bottom of the crab

Tubuca dussumieri

It is a member of the genus Tubuca, with a narrow carapace surface, not equipped with nodules found at the base of the male orbit. The carapace is broad with well-defined anterolateral edges, rectangular and black without markings with pointed ends. It has a pair of pincers; in males, there are large claws (major cheliped) and small claws (minor cheliped); large claws in males have two grooves on the outer surface of the dactulus, while on the outer surface of the pole, there is one groove also equipped with large nodules found on the surface of the manus. The dactyl and polex ends do not form a forceps-like structure. Dactylus is white, while polex is reddish-orange. It has four pairs of legs where the male is slender, and the fourth female has a ridge and is brightly coloured. Distributed throughout the coasts of Indonesia, China, Taiwan, Thailand, the northeast coast of Australia, and Papua New Guinea (Murniati & Pratiwi 2015; Shih et al. 2016).

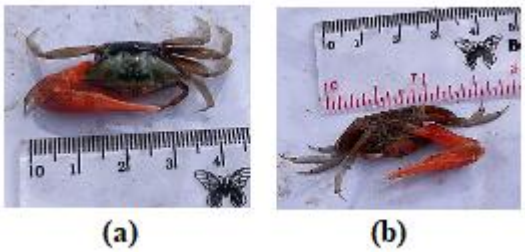

Figure 4. Tubuca dussumieri. a) the top of the crab; b) the bottom of the crab

Parasesarma bidens

The rectangular carapace is slightly wider than long; the front notched in two with a concave centre. The surface of the carapace has clear, smooth divisions, short setae scattered all over the surface, the gastric region is clearly visible, and the branchial region has very clear prominent lines. The anterolateral aspect has a sharp outer corner of the eye socket; there is one epibranchial tooth behind the outer orbit and short setae along the edge of the carapace. The left and right chelipeds are the same size; there are two pectinated crests at the top of the palm in a transverse position, and the upper dactylus has a row of dactylar tubercles. The stomach consists of 6 movable segments and a telson. This species generally

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spreads to Indonesia from Africa, Australia, Sri Lanka, Thailand, Singapore, Macau, Hong Kong, Vietnam, New Caledonia (Lee & Kwok, 2002).

Figure 5. *Parasesarma bidens*. a) the top of the crab; b) the bottom of the crab

Genus panopeus

All members of Panopeus ss have a similar first male gonopod tip of the familiar trifid panopeid shape with three separated terminal protuberances (Felder & Joel, 2003). The peduncle is stout, basically rounded, the anterior apex granulated, slightly raised to form a short granulated precorneal apex. Antennae with long flagella, peduncle with farthest fused basal articles elongated, rectangular, extending into the long fossa. The highly variable colour pattern, well known in fresh specimens, ranges from reddish brown with solid spots above to white to large areas of orange on the carapace.

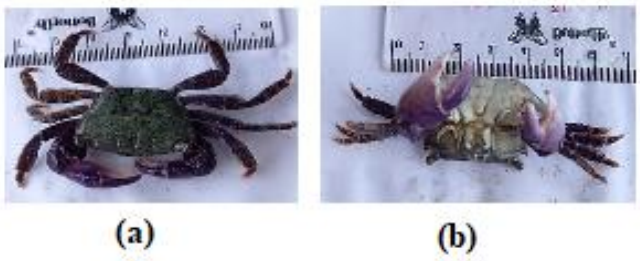

Figure 6. The genus panopeus. a) the top of the crab; b) the bottom of the crab

Rhithropanopeus harrisii

This species exhibits high adaptability to various environmental conditions, tolerating wide variations in salinity and temperature (Boyle et al., 2010). The bio-ecological characteristics that support the species' invasive potential are its high reproduction rate, broad food spectrum, and scarcity of predators and competitors (Fowler et al., 2013). This species is common in the lower basin of the Arno River connected to the port of Livorno, with a length of 11 km and a depth of about 3.5 m. The Navicelli Canal connects the floodway of the Scolmatore dell'Arno about 1 km from the mouth, just north of the harbour.

Figure 8. *Rhithropanopeus harrisii*. a) the top of the crab; b) the bottom of the crab

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Gelasimus vocans

It is a member of the Gelasimus vocans, with a narrow carapace face, no anterolateral rim, the outer corner of the orbit dips, and the carapace are white and orange. Has a pair of pincers; in males, there are large claws (major cheliped) and small pincers (minor cheliped); large claws in males do not have grooves on the outer surface of the dactulus and the outer surface of the polex but on the central base of the polex there is a triangular depression, the dactulus of the large claw is wide and flat. Manus is equipped with large nodules. The dactylus of the large pincers is yellowish in colour, the polex of the large pincers is white, and the manus is yellowish-white. Has four pairs of legs with a slightly orange-white colour. In general, they are found along the coasts of Indonesia, China, Burma, Thailand, the Philippines and Malaysia (Murniati & Pratiwi 2015; Shih et al. 2016).

Figure 9. *Gelasimus vocans*. a) the top of the crab; b) the bottom of the crab

CONCLUSION

The crustacean class arthropods found in the coastal area of The Legend Padelegan Village, Pademawu District, Pamekasan Regency total of eight species grouped into four families. Most of the Arthropod species in the crustacean class are dominated by the Ocypodidae family, which consists of 3 species. Then from the Sesarmidae and Panopeidae families, both number 2 species. In addition, Arthropod species from the Varunidae family were also found one Arthropod species.

REFERENCES

Boyle Jr, T., Keith, D., & Pfau, R. (2010). Occurrence, reproduction, and population genetics of the estuarine mud crab, Rhithropanopeus harrisii (Gould)(Decapoda, Panopidae) in Texas freshwater reservoirs. *Crustaceana*, 493-505.

Carpenter, K. E. (2002). The living marine resources of the Western Atlantic introduction, molluscs, crustaceans, hagfishes, shraks, batoid fishes and chimaeras. *J. Food and Agriculture Organization*, *1*, 328-330.

Felder, D. L., & Joel, W. M. (2003). Establishment of a new genus for Panopeus bermudensis Benedict & Rathbun, 1891, and several other xanthoid crabs from the Atlantic and Pacific oceans (Crustacea: Decapoda: Xanthoidea). *Proceedings of the Biological Society of Washington*.

Fowler, A. E., Forsström, T., von Numers, M., & Vesakoski, O. (2013). The North American mud crab Rhithropanopeus harrisii (Gould, 1841) in newly colonized Northern Baltic Sea: distribution and ecology. *Aquatic Invasions*, *8*(1).

Lee, S. Y., & Kwok, P. W. (2002). The importance of mangrove species association to the population biology of the sesarmine crabs Parasesarma affinis and Perisesarma bidens. *Wetlands ecology and management*, *10*, 215-226.

Milatiya, K. (2020). Pengembangan Bookletbiodiversitas Crustacea Di Pantai Pacar Kabupaten Tulungagung Sebagai Sumber Belajar Biologi. In *Molecules* (Vol. 2, Issue1)

Murniati, D. C., & Pratiwi, R. (2015). *Kepiting uca di hutan mangrove Indonesia: tinjauan aspek biologi dan ekologi untuk eksplorasi*. LIPI press.

Needham, H. R., Pilditch, C. A., Lohrer, A. M., & Thrush, S. F. (2010). Habitat dependence in the functional traits of Austrohelice crassa, a key bioturbating species. *Marine Ecology Progress Series*, *414*, 179-193.

Nurhadi, N. (2011). Komposisi Arthropoda Permukaan Tanah di Kawasan Pabrik Pupuk Sriwijaya Palembang. *Ekotrans*, *1*(1), 1-11.

Pratiwi, R. (2002). Adaptasi fisiologi, reproduksi dan ekologi krustasea (Dekapoda) di mangrove. *Oseana*, *27*(2), 1-9.

Prayogi, W. A., & Asyiawati, Y. (2021). Kajian Kerentanan Pantai terhadap Pengembangan Wilayah Pesisir Pangandaran. *Jurnal Riset Perencanaan Wilayah dan Kota*, 89-98.

Salas, L. A., Bedos, A., Deharveng, L., Fryer, S., Hadiaty, R., Heryanto, & Stanley, S. (2005). Biodiversity, endemism and the conservation of limestone karsts in the Sangkulirang Peninsula, Borneo. *Biodiversity*, *6*(2), 15-23.

Santoso, M. I. (2015). Applying interactive planning on public service leadership in the directorate general of immigration Indonesia. *Procedia-Social and Behavioral Sciences*, *169*, 400-410.

Shih, H. T., Lee, J. H., Ho, P. H., Liu, H. C., Wang, C. H., Suzuki, H., & Teng, S. J. (2016). Species diversity of fiddler crabs, genus Uca Leach, 1814 (Crustacea: Ocypodidae), from Taiwan and adjacent islands, with notes on the Japanese species. *Zootaxa*, *4083*(1), 57-82.

Suryanti, S., Supriharyono, S., & Anggoro, S. (2019). Pengelolaan Wilayah Pesisir Terpadu. Undip Press.

Swedberg, R. (2020). Exploratory research. *The production of knowledge: Enhancing progress in social science*, 17-41.